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Research

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Life-sustaining treatment decisions in Portuguese intensive care units: a national survey of intensive care physicians

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Abstract

Introduction The objective of the present study was to evaluate the opinion of Portuguese intensive care physicians regarding 'do-not-resuscitate' (DNR) orders and decisions to withhold/withdraw treatment.

Methods A questionnaire was sent to all physicians working on a full-time basis in all intensive care units (ICUs) registered with the Portuguese Intensive Care Society.

Results A total of 266 questionnaires were sent and 175 (66%) were returned. Physicians from 79% of the ICUs participated. All participants stated that DNR orders are applied in their units, and 98.3% stated that decisions to withhold treatment and 95.4% stated that decisions to withdraw treatment are also applied. About three quarters indicated that only the medical group makes these decisions. Fewer than 15% of the responders stated that they involve nurses, 9% involve patients and fewer than 11% involve patients' relatives in end-of-life decisions. Physicians with more than 10 years of clinical experience more frequently indicated that they involve nurses in these decisions ($P<0.05$), and agnostic/atheist doctors more frequently involve patients' relatives in decisions to withhold/withdraw treatment ($P<0.05$). When asked about who they thought should be involved, more than 26% indicated nurses, more than 35% indicated the patient and more than 25% indicated patients' relatives. More experienced doctors more frequently felt that nurses should be involved ($P<0.05$), and male doctors more frequently stated that patients' relatives should be involved in DNR orders ($P<0.05$). When a decision to withdraw treatment is made, 76.8% of 151 respondents indicated that they would initiate palliative care; no respondent indicated that they would administer drugs to accelerate the expected outcome.

Conclusion The probability of survival from the acute episode and patients' wishes were the most important criteria influencing end-of-life decisions. These decisions are made only by the medical group in most of the responding ICUs, with little input from nursing staff, patients, or patients' relatives, although many respondents expressed a wish to involve them more in this process. Sex, experience and religious beliefs of the respondents influences the way in which these decisions are made.

Keywords do-not-resuscitate orders, end-of-life decisions, intensive care unit, withdrawing, withholding

Introduction

Major advances in medicine have given physicians the ability to prolong life. However, despite aggressive measures, which can go as far as full treatment in an intensive care environment, many patients remain in an irreversible and terminal clinical state.

DNR = do-not-resuscitate; ICU = intensive care unit.

Table 1

Geographic distribution of Portuguese intensive care units and intensive care physicians surveyed

	Physicians			Intensive care units		
Location	Surveyed (*n* [%])	Responded (*n* [%])	Response rate	Surveyed (*n* [%])	Responded (*n* [%])	Response rate
North	56 (21)	42 (24)	75%	11 (21)	10 (24)	91%
Centre	37 (14)	16 (9)	43%	8 (15)	5 (12)	63%
South	163 (61)	108 (62)	66%	31 (58)	24 (57)	77%
Islands	10 (4)	9 (5)	90%	3 (6)	3 (7)	100%
Total	266	175	66%	53	42	79%

During the past three decades, concepts such as 'do-not-resuscitate' (DNR) orders, and decisions to withhold or withdraw treatment have emerged in an attempt to prevent the institution of therapeutic measures that would no longer benefit the patient (in accordance with the principles of beneficence and nonmaleficence). During this period broad discussion has surrounded this subject, ranging from the legal aspects that support these decisions to the ethical aspects of the decisions themselves [1–9], specifically when to make them (and what are the criteria), who should decide (and who should be involved) and how should such decisions be applied (the practical approach to the patient).

Several reports have been published on this subject, including surveys of health care workers' views [10–13] and studies documenting current practice [14–21], which are of the utmost importance in constructing practical guidelines. Although some Portuguese intensive care physicians have already participated in a European survey conducted by Vincent [10] in 1996, a small number were included (24 physicians), and a national survey of Portuguese intensivists' views is therefore needed.

The purpose of this survey was thus to evaluate the current views of Portuguese intensive care physicians regarding end-of-life decisions, specifically DNR orders and decisions to withhold/withdraw treatment.

Methods

In October 2001 a questionnaire (see Appendix 1) was sent to all physicians working on a full-time basis in intensive care units (ICUs) registered with the Portuguese Intensive Care Society. Paediatric, high dependency and specialized units (e.g. burns and coronary care units) were excluded. The respondents were not required to disclose their identity.

Data were collected regarding the location of the ICU, the size of the ICU (≤4 beds, 5–8 beds, or >8 beds) and physicians' sociodemographic characteristics, as follows: age (<45 or ≥45 years old), sex, religion (catholic, agnostic or atheist, or other), speciality (anaesthesia, internal medicine, pulmonary medicine, or other), years of clinical experience (≤2, 3–5, 6–10, or >10 years).

Physicians were asked whether DNR orders, and decisions to withhold and withdraw treatment are made in their ICUs; what are the most important criteria for these decisions; who is and who should be involved in the process; and how are the decisions documented/transmitted to the working group (i.e. doctors, nurses, physiotherapists, among others). They were also asked what measures are taken after a decision is made to withdraw therapy (e.g. waiting and intervening minimally until the patient's death, initiating palliative care such as morphine infusion, or administering drugs to reduce the time to death). Answers to the questions were compared with respect to ICU location and size, and physicians' sociodemographic characteristics.

Proportions were compared with the χ^2 test, using the Yates correction or the Fisher exact test as indicated. The Bonferroni method was used to adjust for multiple comparisons. $P<0.05$ was considered statistically significant. Data were analyzed using the statistical package Epi Info [23].

Results

From a total of 266 questionnaires sent, 175 (66%) were returned. Physicians from 79% of the country's ICUs participated in the study. The geographical distribution of ICUs is shown in Table 1, and the sociodemographic characteristics of the respondents and sizes of ICUs are shown in Table 2.

The most important criterion for DNR orders, and decisions to withhold or withdraw treatment (end-of-life decisions) was the probability of survival from the acute episode, followed by the patient's wishes (Table 3). No physicians considered age of the patient to be the most important criteria for arriving at end-of-life decisions. When stratified according to the physician's characteristics, more male than female doctors (26.4% versus 15.9%; $P<0.05$) considered the patient's wishes to be the most important criterion for withdrawing therapy. No significant differences were found when the data were stratified with respect to other characteristics.

Table 2

Sociodemographic characteristics of respondents and size of intensive care units

Characteristics	*n* (%)
Age (years)	
< 45	98 (56.0)
≥ 45	77 (44.0)
Sex	
Male	92 (52.6)
Female	83 (47.4)
Religion	
Catholic	115 (65.7)
Agnostic or atheist	55 (31.4)
Other	1 (0.6)
Nonresponders	4 (2.3)
Primary specialty	
Anaesthesia	63 (36.0)
Internal medicine	77 (44.0)
Pulmonary medicine	20 (11.4)
Other	15 (8.6)
Intensive care experience (years)	
≤ 2	16 (9.1)
3–5	38 (21.7)
6–10	41 (23.4)
> 10	77 (44.0)
Nonresponders	3 (1.7)
ICU size (number of beds)	
≤ 4	25 (14.3)
5–8	106 (60.6)
> 8	44 (25.1)

All respondents indicated that DNR orders are applied in their ICUs. Of 170 respondents who answered the question about how they document DNR orders, 50% indicated that they write them down in the patient's medical record (of these only three participants indicated that they write the order in a specific document); the remaining 50% transmit them to the working group only verbally. The way in which DNR orders are documented changed with physician speciality, with anaesthesiologists (68.3%; $P<0.05$) applying only verbal DNR orders significantly more frequently than internal medicine (39.0%), pulmonary medicine (40.0%) and other specialists (46.2%). No other sociodemographic characteristics of the respondents, or ICU localization or size influenced the way in which DNR orders are transmitted.

A total of 172 (98.3%) respondents indicated that decisions to withhold treatment, and 167 (95.4%) indicated that decisions to withdraw treatment are made in their ICUs. Compared with DNR orders, a slightly greater proportion stated that they write these orders down; specifically 56.0% of 167 respondents and 59.8% of 164 respondents stated that they indicate in writing that a decision has been made to withhold treatment and to withdraw treatment, respectively. However, neither specialty nor other physician or ICU characteristics influenced the way in which these decisions are transmitted.

The majority of the respondents stated that only the medical group is involved in end-of-life decisions (Table 4). Physicians with more than 10 years of clinical experience more frequently stated that they involve the nursing staff (26% in DNR orders, 21.1% in decisions to withhold treatment and 19.7% in decisions to withdraw treatment; $P<0.05$) than did those with less experience. Agnostic/atheist doctors, compared with catholic doctors, more frequently stated that they involve patients' relatives in decisions to withhold treatment (20.4% versus 7.0%; $P=0.02$) and to withdraw treatment (16.4% versus 5.3%; $P=0.04$).

When asked who they thought should be involved in end-of-life decisions, the majority of respondents indicated the medical group, but fewer than 50% indicated that only the medical group should be involved (Table 4). Physicians with more than 10 years of clinical experience, compared with those with less experience, more often stated that the nursing staff (49.4% in DNR orders, 36.8% in decisions to withhold treatment and 37.7% in decisions to withdraw treatment;

Table 3

Criteria cited as most important in influencing 'do-not-resuscitate' orders and decisions to withhold/withdraw treatment

Criteria	DNR order	Withholding	Withdrawal
Probability of survival from the acute episode	87 (49.7)	96 (54.9)	99 (56.6)
Long-term survival	7 (4.0)	9 (5.1)	10 (5.7)
Previous quality of life	17 (9.7)	14 (8.0)	10 (5.7)
Expected quality of life after acute illness	10 (5.7)	10 (5.7)	9 (5.1)
Patient's wishes	48 (27.4)	41 (23.4)	37 (21.1)
Patient's relatives wishes	0 (0.0)	0 (0.0)	1 (0.6)

Values are expressed as number (%). DNR, do-not-resuscitate.

Table 4

Those who Portuguese intensivists involve and think should be involved in 'do-not-resuscitate' orders, and decisions to withhold/withdraw treatment

	DNR		Withhold		Withdraw	
	Are involved (*n* [%])	Should be involved (*n* [%])	Are involved (*n* [%])	Should be involved (*n* [%])	Are involved (*n* [%])	Should be involved (*n* [%])
Medical group	168 (96.0)	168 (96.0)	172 (98.3)	167 (95.4)	167 (95.4)	166 (94.9)
Nursing staff	26 (14.9)	62 (35.4)	22 (12.6)	46 (26.3)	23 (12.6)	48 (27.4)
Patient, if competent	16 (9.1)	75 (42.9)	16 (9.1)	67 (38.3)	16 (9.1)	62 (35.4)
Patient's relatives	15 (8.6)	51 (29.1)	19 (10.9)	45 (25.7)	15 (8.6)	54 (30.9)
Patient/relatives only	0 (0.0)	5 (2.9)	0 (0.0)	4 (2.3)	2 (1.1)	5 (2.9)
Only the doctor on duty	13 (7.4)	7 (4.0)	8 (4.6)	8 (4.6)	0 (0.0)	4 (2.3)
Only the medical group	129 (73.7)	76 (43.4)	131 (74.9)	83 (47.4)	129 (73.7)	79 (45.1)

The total sum is greater than 100% because some physicians gave more than one answer. Values are expressed as number (%). DNR, do-not-resuscitate.

$P<0.05$) and patients' relatives (40.3% in DNR orders and 35.5% in decisions to withhold treatment; $P<0.05$) should also be involved. Compared with female physicians, male physicians more frequently stated that patients' relatives should be involved in DNR orders (38.0% versus 19.3%; $P=0.01$) and decisions to withhold treatment (37.0% versus 13.4%; $P<0.05$). After adjustment, years of clinical experience no longer remained statistically significant for involving patients' relatives, whereas sex remained significant, but only with males more often indicating that patients' relatives should be involved in DNR orders ($P=0.03$). Fewer than 5% considered that only the doctor on duty should make the final decision on the day (Table 4).

When the decision is made to withdraw treatment, out of the 151 (86.3%) respondents, 23.2% stated that they just wait until the patient dies with minimal intervention and 76.8% initiate palliative care such as morphine infusion. No respondent indicated that they would administer drugs to reduce to time to death.

Discussion

Between 65% and 90% of all ICU deaths occur after a decision to forgo life-sustaining therapy is made [18,19,29]. In the present study the probability of survival from the acute episode and the patient's wishes were stated as the most important criteria for DNR orders and decisions to withhold/withdraw treatment – findings similar to those reported by others [12,16,22]. A study of patient and family preferences regarding their willingness to undergo intensive care found that respondents chose survival over quality of life [27]. In contrast, another study of 200 patients admitted to medical wards [26] demonstrated that their preferences for aggressive care were modified by perceived outcome (90% would prefer life support if their health could be restored to its usual level).

In 1996, 24 Portuguese ICU doctors participated in a European survey conducted by Vincent [10]. Although only 17% stated that they apply DNR orders, 77% thought that they should. In our survey 100% of the respondents (representing 79% of Portuguese ICUs) stated that DNR orders are applied in their ICUs, and more than 95% stated that they make decisions to withdraw and withhold treatment.

Discussion of these decisions is usually focused on who is or should be involved in the decision making process, and what are the criteria for making such decisions [1–5,9–14,16,18, 22,25,28–30]. The treating physician used to be the prime decision maker, with little or no input from the patient or their relatives, other health care workers or sometimes even colleagues. However, with growing discussion of the ethical bases of these issues, that role is increasingly questioned as the rights of the individual to choose whether to receive life-sustaining treatment are promoted (i.e. principle of autonomy or self-determination) [7,10]. Because patients in the ICU setting are frequently unable to state their preferences and wishes [18–20], family members or another appointed surrogate must act on their behalf [1,24], further enlarging the group that must be considered.

In comparison with other studies, in the present survey only a very small percentage of doctors (8–11%) stated that they involve patients and/or relatives. In the European surveys conducted in 1988 [11] and 1996 [10], approximately half of the intensivists indicated that the family was involved in end-of-life decisions. In the prospective study of decisions to withhold and withdraw treatment conducted by the French LATAREA group over a 2-month period in 113 French ICUs, the family was involved in 44% of the decisions [14]. In a Spanish prospective multicentre observational study of these decisions [16], the patient's family was involved in only 28.3% of 226 cases. A greater percentage of family involvement is

seen in studies conducted in North America. In a study conducted by Smedira and coworkers [18], the family participated in the decision to withhold/withdraw treatment in 102 (88.7%) out of 115 patients. In a similar Canadian study, conducted by Hall and Rocker [28], the family was involved in the discussion in 94% of 138 cases.

In the present study the number of physicians who felt that DNR orders should be discussed with patients and/or their relatives was three times greater than the number who actually do it; a similar discrepancy was described in other surveys [10,25]. It probably reflects the difficulty associated with discussion of these issues, which tends to be postponed or not done at all. However there is evidence that discussion on this topic becomes easier if it is carried out more frequently [21], and it perhaps should become a part of the ICU admission procedure [10].

In our survey only 12–15% of the respondents stated that they would involve nursing staff in these decisions. These findings are similar to those from a retrospective Canadian study that involved physicians and other health care workers in 37 ICUs, in which nurses were involved in only 16% of the decisions [12]. However, the findings differ from the situation in Europe. In the study conducted by the French LATAREA group [14] nurses were involved in the decisions in 54% of cases, and in a UK prospective study conducted at an ICU in London [20] nurses were involved in 85% of decisions to withdraw treatment. In a questionnaire sent to all physician members of the European Society of Intensive Care Medicine, 53% of the respondents stated that nurses were involved in the decisions [10]. These results suggest that routine practice in Portuguese ICUs differs markedly from the European tendency toward greater involvement of other health care workers, specifically nursing staff, in life-sustaining treatment decisions, although nearly one-third of the respondents (26–35%) in the present survey indicated a wish to change this situation.

Of respondents in the present study, 4.6% and 7.4% indicated that the doctor on duty is the sole decision maker regarding withholding treatment and DNR orders, respectively; this is a smaller number than reported by other studies [14]. Of those who responded, 4% felt that this situation is appropriate. Giving one person the power to make life and death decisions is dangerous, and the responsibility is a heavy one.

Even when clinicians make decisions with the best evidence available, their own ethical, social, moral and religious beliefs can influence these decisions [10,12]. In our survey we found that sex, years of professional experience and religion influenced the way in which questions were answered.

Documentation of decisions is poor but similar to that reported by others [11,14,30].

Key messages

- All 175 participants stated that DNR orders are applied in their units, and 98.3% stated that decisions to withhold treatment and 95.4% stated that decisions to withdraw treatment are also applied
- The probability of survival from the acute episode and patients' wishes was the most important criteria for influencing end-of-life decisions
- These decisions are made only by the medical group in most of the responding ICUs, with little input from nursing staff, patients, or patients' relatives. although many respondents expressed a wish to involve them more in the process

Of the Portuguese ICU physicians surveyed, 66% (representing 79% of ICUs) answered this questionnaire – a rate similar to that in other published surveys in similar contexts [10–13]; we consider this rate to be representative of the Portuguese intensivist opinion. Although we cannot be sure that nonrespondents do not differ from respondents in the examined domains, any differences would have to be considerable to alter our findings significantly.

Another factor in a questionnaire investigating beliefs and thoughts that may influence its interpretation, and hence the results, is the way in which questions are worded. Finally, a questionnaire relies on the answers provided and not on direct observations.

The present survey only addresses the ICU doctor's views, and the opinions of other health care workers, patients and ultimately society in general might well be different.

Competing interests

None declared.

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Appendix 1: questionnaire

LIFE-SUSTAINING TREATMENT DECISIONS IN INTENSIVE CARE

1. Age _____ years
2. Sex F ☐ M ☐
3. Religion: Catholic ☐ Agnostic or atheist ☐ Other _____
4. Speciality: Anaesthesia ☐ Internal Medicine ☐ Pulmonary Medicine ☐
   Other _____
5. Years of clinical work in intensive care:
   < 2 years ☐ 3–5 years ☐ 6–10 years ☐ > 10 years ☐
6. Number of beds of your ICU:
   ≤ 4 beds ☐ 5–8 beds ☐ > 8 beds ☐
7. Medium occupation rate of your ICU during last year:
   < 80% ☐ 80–85% ☐ 86–90% ☐ > 90% ☐
8. In your ICU the patient is evaluate before admission by an:
   ICU doctor ☐ Other doctor ☐ No evaluation is made previously ☐
9. Chose the 4 more important criteria for refusing ICU admission to a patient (1 to 4, being 1 the most important one):
   - ☐ Probability of survival from acute illness
   - ☐ Probability of long-term survival
   - ☐ Previous quality of life
   - ☐ Quality of life expected after discharge
   - ☐ Patients will
   - ☐ Relatives will
   - ☐ Age
   - ☐ Other _____
10. Are decisions not to perform cardiopulmonary resuscitation (DNR) applied in your ICU?
    Yes ☐ No ☐
11. Who is involved in DNR decisions?
    - ☐ Medical group
    - ☐ Nurses
    - ☐ Patient, if competent
    - ☐ Patients' relatives
    - ☐ The patient or relatives make the final decision
    - ☐ Only the doctor in duty that day
12. In your ICU, DNR orders are:
    - ☐ Recorded in a specific document
    - ☐ Recorded in clinical notes
    - ☐ Transmitted only verbally to the working group
13. In your opinion DNR decisions should involve:
    - ☐ Medical group
    - ☐ Nurses
    - ☐ Patient, if competent
    - ☐ Patients' relatives
    - ☐ The patient or relatives make the final decision
    - ☐ Only the doctor in duty that day

Appendix 1: continued

LIFE-SUSTAINING TREATMENT DECISIONS IN INTENSIVE CARE

14. Chose the 4 more important criteria for a DNR decision (1 to 4, being 1 the most important one):

- ☐ Probability of survival from the acute illness
- ☐ Probability of long-term survival
- ☐ Previous quality of life
- ☐ Quality of life expected after discharge
- ☐ Patient will
- ☐ Relatives will
- ☐ Age
- ☐ Other _____

15. Are decisions not to proceed to further treatment escalade in some patients made in your ICU?

Yes ☐ No ☐

16. In your ICU decisions not to proceed to further treatment escalade involve:

- ☐ Medical group
- ☐ Nurses
- ☐ Patient, if competent
- ☐ Patients' relatives
- ☐ The patient or relatives make the final decision
- ☐ Only the doctor in duty that day

17. In your ICU, decisions not to proceed to further treatment escalade are:

- ☐ Recorded in a specific document
- ☐ Recorded in clinical notes
- ☐ Transmitted only verbally to the working group

18. In your opinion decisions not to proceed to further treatment escalade should involve:

- ☐ Medical group
- ☐ Nurses
- ☐ Patient, if competent
- ☐ Patients' relatives
- ☐ The patient or relatives make the final decision
- ☐ Only the doctor in duty that day

19. Chose the 4 more important criteria in deciding not to proceed to further treatment escalade (1 to 4, being 1 the most important one):

- ☐ Probability of survival from the acute illness
- ☐ Probability of long-term survival
- ☐ Previous quality of life
- ☐ Quality of life expected after discharge
- ☐ Patient will
- ☐ Relatives will
- ☐ Age
- ☐ Other _____

20. In your ICU are decisions to suspend treatment in some patients made:

Yes ☐ No ☐

Appendix 1: continued

LIFE-SUSTAINING TREATMENT DECISIONS IN INTENSIVE CARE

21. In your ICU, decisions to suspend treatment involve:

- ☐ Doctors
- ☐ Nurses
- ☐ Patient, if competent
- ☐ Relatives
- ☐ The patient or relatives take the final decision

22. In your ICU, decisions to suspend treatment are:

- ☐ Recorded in a specific document
- ☐ Recorded in clinical notes
- ☐ Transmitted only verbally to the working group

23. In your opinion, decisions to suspend treatment should involve:

- ☐ Medical group
- ☐ Nurses
- ☐ Patient, if competent
- ☐ Patients' relatives
- ☐ The patient or relatives make the final decision
- ☐ Only the doctor in duty that day

24. Chose the 4 more important criteria in decisions to suspend treatment (1 to 4, being 1 the most important one):

- ☐ Probability of survival from the acute illness
- ☐ Probability of long-term survival
- ☐ Previous quality of life
- ☐ Quality of life expected after discharge
- ☐ Patient will
- ☐ Relatives will
- ☐ Age
- ☐ Other _____

25. In your ICU a decision to suspend treatment is preceded by a DNR decision:

Always ☐ Most of the times ☐ Sometimes ☐ Never ☐

26. When you decide to suspend therapy in a patient which order do you usual follow (put in numerical order):

- ☐ Mechanical ventilation
- ☐ Nutrition and fluids
- ☐ Haemodialysis or haemofiltration
- ☐ Inotropic and vasopressor agents
- ☐ Sedation
- ☐ Paralysis

27. When you decide to suspend treatment do you:

- ☐ Wait the inevitable end with minimal intervention
- ☐ Start confort measures (like morphine infusion)
- ☐ Administer drugs to accelerate the expected end

Thank you!